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10/069,596

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Hiroyuki Nakajima

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EXAMINER

LEUNG, JENNIFER A

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,596

Applicant(s)

NAKAJIMA ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicants' amendment filed on September 14, 2006 has been received and carefully considered. Claims 1-11 are cancelled. Claims 12-15 remain active.

Response to Arguments

2. Applicants' arguments have been fully considered but they are not persuasive.

Beginning at page 4, third paragraph, of the response, Applicants argue that the Takahata et al. reference fails to teach the instantly claimed three-way catalyst, because the three-way catalysts described in Examples 1 and 7 of Takahata et al. contain a surface layer of *palladium*, whereas Applicant's three-way catalyst contains a surface layer of *platinum*.

The Examiner respectfully disagrees. Although Examples 1 and 7 are of three-way catalysts having a surface layer of palladium, Takahata et al. specifically teaches that the catalyst of the surface layer is not limited to palladium. For instance, this surface layer (i.e., the second catalyst layer) may comprise platinum, palladium or both (see column 5, lines 23-40). Examples 1 and 7 were merely relied upon to illustrate an embodiment wherein the noble metals of rhodium and platinum were provided in "admixture" at the inner layer. Please note that patents are relevant as prior art for all that they contain. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *Upsher-Smith Labs. v. PamLab, LLC*, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005); *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998).

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Furthermore, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Applicants (beginning at page 5, first paragraph) further argue that the three-way catalysts of Takahata et al. are not suitable for improving hydrocarbon purifying performance during lean air-fuel ratio operation, or during the transition from a lean air-fuel ratio to a theoretical air-fuel ratio and theoretical air-fuel ratio operation, because the Takahata et al. catalysts are used for purifying hydrocarbons exhausted from an engine start-up by means of secondary air.

The Examiner respectfully disagrees. The particular atmosphere in which the three-way catalyst is to be subjected to is not considered part of the apparatus. It is considered a process limitation or a matter of intended use, and a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Because the three-way catalyst of Takahata et al. comprises each of the instantly claimed catalytic elements, the three-way catalyst must inherently be operable under the above air-fuel ratios.

Furthermore, it is noted that Takahata et al. specifically teaches that his catalysts *would* be suitable for operation under both fuel lean and fuel rich atmospheres (see page 3, lines 18-30). This implies that the catalyst would also be suitable for operation under a stoichiometric fuel-air ratio. Also, the exhaust purification is not limited to engine start-up (see column 1, lines 14-24).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. (EP 0 915 244) in view of Takahata et al. (US 5,376,610).

Regarding claim 12, Kaneko et al. discloses a catalytic apparatus comprising:

exhaust purification means 13 provided in the exhaust path and adapted to absorb NO_x when an air-fuel ratio of incoming exhaust gas is a lean air-fuel ratio and to release or reduce the absorbed NO_x when an oxygen concentration of the incoming exhaust gas lowers; and

a three-way catalyst 11 provided in the exhaust path, having a function of reducing HC in the exhaust gas, and located on an upstream side of said purification means 13, said three-way catalyst including a plurality of layers and containing a small amount of or no ceria (see, for example, sections [0021], [0038]-[0039], [0145]).

The apparatus of Kaneko et al. is substantially the same as that of the instant claims, but is silent as to the specific components of each layer of the three-way catalyst as claimed.

However, Takahata et al. teaches the provision of a three-way catalyst for reducing HC in the exhaust gas, said three-way catalyst having an inner layer containing Rh in an amount of 1.5-10 g/ft³ mixed with other noble metals, such as Pt and Pd; and an outermost layer containing Pd or Pt in an amount of 5-60 g/ft³ (see Examples 1 and 7 of Takahata et al.; see also, generally, col. 4, lines 41-43; col. 5, lines 9-40; col. 7, lines 35-38, 58-65; col. 8, lines 5-10).

It would have been obvious for one having ordinary skill in the art at the time the invention was made to substitute the three-way catalyst of Takahata et al. for the three-way

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catalyst of Kaneko et al. for the known and expected results of obtaining the same results thereof, and since such a modification would have involved a mere substitution of known equivalents. A substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claims 13-15, the range of each component in the layers of the three-way catalyst of Takahata et al. encompasses the ranges recited in the instant claims.

4. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 6,463,734) in view of Kaneko et al. (EP 0 915 244) and Takahata et al. (US 5,376,610).

Regarding claim 12, Tamura et al. discloses a catalytic apparatus comprising:

exhaust purification means 13 provided in the exhaust path and adapted to absorb NOx when an air-fuel ratio of incoming exhaust gas is a lean air-fuel ratio and to release or reduce the absorbed NOx when an oxygen concentration of the incoming exhaust gas lowers; and

a three-way catalyst 32 provided in the exhaust path, having a function of reducing HC in the exhaust gas, and located on an upstream side of said purification means 13, said three-way catalyst including Pt, Rh, etc. (col. 7, lines 58-67).

The apparatus of Tamura et al. is substantially the same as that of the instant claims, but is silent as to the specific components of each layer of the three-way catalyst as claimed.

However, Kaneko et al. teaches the provision of a three-way catalyst 11 located upstream of the exhaust purification means 13 and containing only a small amount or none of ceria so as to assure the improving durability of the exhaust purification means (col. 12, lines 40-48).

Takahata et al. teaches the provision of a three-way catalyst for reducing HC in the

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exhaust gas, said three-way catalyst having an inner layer containing Rh in an amount of 1.5-10 g/ft³ mixed with other noble metals, such as Pt and Pd; and an outermost layer containing Pd or Pt in an amount of 5-60 g/ft³ (see Examples 1 and 7 of Takahata et al.; see also, generally, col. 4, lines 41-43; col. 5, lines 9-40; col. 7, lines 35-38, 58-65; col. 8, lines 5-10).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the three-way catalyst of Takahata et al. with the amount of ceria as taught by Kaneko et al. for the three-way catalyst in the apparatus of Tamura et al., for the known and expected results of obtaining the same results thereof, and since such a modification would have involved a mere substitution of known equivalents. A substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claims 13-15, the range of each component in the layers of the three-way catalyst of Takahata et al. encompasses the ranges recited in the instant claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

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ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 12-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,463,734 to Tamura et al. in view of Kameko et al. (EP 0 915,244) and Takahata et al. (US 5,376,610).

The same comments with respect to Tamura et al., Kameko et al. and Takahata et al., from above, apply.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449.

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The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung
November 25, 2006



Glenn A. Caldarola
Supervisor, Patent Examination
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